

Structural organisation of tunica intima in the aorta of the goat

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Abstract

The structural organisation of tunica intima in the aorta is important for its integrity, prediction, and diagnosis of atherosclerosis. The goat is a suitable model for cardiovascular studies, but the structure of its tunica intima is scarcely reported. This study, therefore, aimed to describe features of the goat aortic tunica intima by light and transmission electron microscopy. Sixteen healthy male domestic goats (*capra hircus*) aged between 6 and 24 months were used: 8 for light and 8 for electron microscopy. The animals were euthanised with sodium pentobarbitone 20 mg/mL and fixed with 3% phosphate buffered glutaraldehyde. For light microscopy, specimens from various regions of the aorta were routinely processed for paraffin embedding and 7 μ m sections stained with Mason's trichrome. Those for transmission electron microscopy were post fixed in osmium tetroxide, embedded in Durcupan, and ultrathin sections stained with uranyl acetate and counter stained with lead citrate. Endothelium comprises round and squamous cells, linked to the subendothelial material by a simple and sometimes lamellated basement membrane. In the subendothelial zone, a heterogenous population of cells are connected with interlinked collagen and elastic fibres. Both cells and fibres are connected to the internal elastic lamina. The composite structure and interlinkages in the tunica intima permit unitary function and increase mechanical strength, thus enabling it to withstand haemodynamic stress.